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DALEY, CLIFTON G	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,393	PATTEN, PETER	
	Examiner	Art Unit	
	Clifton G. Daley	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/17/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 23, the term "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a

> computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 23 defines a computer program embodying functional descriptive material. However, the claim does not define a "computer-readable medium or computer-readable memory" and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

"A transitory, propagating signal … is not a "process, machine, manufacture, or composition of matter." Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter." (*In re Petrus A.C.M. Nuijten;* Fed Cir, 2006-1371, 9/20/2007).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 8, 18, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Shih et al. (hereinafter "Shih"; Chihhsiong S. Shih and Lester A. Gerhardt, "Surface sampling techniques for 3D object inspection", 1995, SPIE Vol. 2423, pp. 118-135).

Regarding claims 1 and 23, Shih teaches a method and analogous program for determining a physical property as a function of a n-dimensional domain, with n being a natural number, whereby values of said physical property correspond to vertices of a n-dimensional first grid representing the domain **(page 120, section 2.1.1, steps 1 and 2, i.e. first grid comprising the four cells as shown in the figure on page 120)**, said method comprising the steps of:

determining, for a set of cells of said first grid, at least one inner point per cell **(page 120, section 2.1.1, Step 3)**, whereby said inner points, together with the vertices of the first grid, form a respective second grid **(i.e. the grid formed by subdividing each of the initial four cells)**;

determining, for each of said inner points, a corresponding value of the physical property at said inner point, whereby in case a predefined criterion is not fulfilled, said value at the inner point is obtained by performing a measurement **(page 120, section 2.1.1, steps 4 and 5)**.

Regarding claim 8, Shih teaches the method according to claim 1, wherein the decision criterion is fulfilled if the variation of the values of the physical property at the vertices of the corresponding cell does not exceed a predefined limit **(page 120, section 2.1.1, step 4, i.e. variation from a plane)**.

Regarding claim 18, Shih teaches the method according to claim 1, wherein said step of determining at least one inner point per cell is carried out at least once in order to refine said first grid **(page 120, section 2.1.1, steps 4 and 5)**.

Regarding claim 24, Shih teaches an apparatus **(page 119, paragraph 1, lines 7-10, i.e. computer hardware and software for image processing)** for determining a physical property as a function of a n-dimensional domain, with n being a natural number, whereby values of said physical property correspond to vertices of a n-dimensional first grid representing the domain **(page 121, section 2.1.2, grid formed from initial and inserted points after steps 1 and 2)**, said apparatus comprising

a grid refinement unit adapted for determining, for a set of cells of said first grid, at least one inner point per cell **(page 120, section 2.1.1, Step 3)**, whereby said inner points, together with the vertices of the first grid, form a respective second grid **(i.e. the grid formed by subdividing each of the initial triangles)**;

an interpolation unit adapted for determining, for each of said inner points, a corresponding value of the physical property at said inner point, whereby in case a predefined criterion is not fulfilled, said value at the inner point is obtained by performing a measurement **(page 121, section 2.1.2, steps 3 and 4)**.

3. Claims 1-7, 18, 20, 24, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Abramovitch (US 6745148).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1 and 24, Abramovitch teaches a method and apparatus for determining a physical property as a function of a n-dimensional domain, with n being a natural number, whereby values of said physical property correspond to vertices of a n-dimensional first grid representing the domain, said method comprising the steps of:

determining, for a set of cells of said first grid **(Fig. 10A, grid on x-axis (i.e. 1-dimensional domain), cells defined by vertices 61 and 62, and 63 and 64)**, at least one inner point per cell **(Fig. 10A, point 71a is inside cell defined by vertices 61 and 62)**, whereby said inner points, together with the vertices of the first grid, form a respective second grid **(Fig. 10A, i.e. second grid formed by vertices 61, 71a, 62, 63, 72a and 64 (see also column 7, lines 43-50))**;

determining, for each of said inner points, a corresponding value of the physical property at said inner point, whereby in case a predefined criterion is not fulfilled, said value at the inner point is obtained by performing a measurement **(column 7, lines 50-53 and column 8, lines 48-50)**.

Regarding claim 2, Abramovitch teaches the method of claim 1, wherein in case said criterion is fulfilled, said value at the inner point is not obtained by performing a measurement **(column 10, lines 47-49, i.e. value obtained by estimation instead of measurement)**.

Regarding claim 3, Abramovitch teaches the method according to claim 1, wherein in case said criterion is fulfilled, said value at the inner point is obtained by interpolation **(column 15, lines 20-22)**.

Regarding claim 4, Abramovitch teaches the method according to claim 1, wherein, in case said value at the inner point is obtained by interpolation, said interpolation is performed with respect to the values of the physical property at the vertices of the cell corresponding to said at least one inner point **(column 10, lines 42-43, i.e. by estimation, wherein estimation using interpolation is disclosed at column 15, lines 20-22)**.

Regarding claim 5, Abramovitch teaches the method according to claim 1, wherein the corners of said cells coincide with vertices of said first grid **(column 7, lines 46 to 50)**.

Regarding claim 6, Abramovitch teaches the method according to claim 1, wherein said cells are elementary cells of said first grid **(Fig. 10A and column 6, lines 58-60, i.e. these are elementary cells since there are no vertices between 61 and 62, or 63 and 64 prior to creating the inner points 71a and 72a)**.

Regarding claim 7, Abramovitch teaches the method according to claim 1, wherein said inner points are the central points of said cells **(column 7, lines 46-49)**.

Regarding claim 18, Abramovitch teaches the method according to claim 1, wherein said step of determining at least one inner point per cell is carried out at least

once in order to refine said first grid **(Fig. 16, i.e. initial points 410 followed by new points 420)**.

Regarding claims 20 and 25, Abramovitch teaches the method and apparatus according to claim 1, wherein said method is applied for at least one of a group comprising: testing of a device under test--DUT--, chip testing, determining bit error rates **(column 1, lines 8-14)**.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above.

Regarding claim 9, Shih teaches the method according to claim 1.

Shih does not explicitly teach the limitation wherein the decision criterion is fulfilled if the values of the physical property at the vertices of the corresponding cell are substantially equal to each other.

However, it is implicit in Shih's disclosure that the decision criterion is fulfilled if the values of the physical property at the vertices of the corresponding cell are substantially equal to each other **(page 120, section 2.1.1, steps 4 and 5, i.e.**

variation from a plane, wherein if the plane is flat, then the values would be substantially equal to each other (i.e. within the error threshold), as disclosed by Fig. 2 (b)).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above, and further in view of Etter (US 5673210).

Regarding claim 10, Shih teaches the method according to claim 9.

Shih does not teach the limitation wherein, in case the values at the vertices of the corresponding cell are substantially equal to each other, said value is assigned to the at least one inner point of said cell.

However, Etter discloses a method for estimating missing samples (i.e. not measured) wherein the missing sample is assigned the value of the preceding sample if the samples are not changing significantly (i.e. substantially the same) **(column 2, lines 21-23)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Etter's disclosure of substitution to estimate values not measured in Shih's method for determining a physical property, the motivation being simplicity and speed **(Etter: column 2, lines 15-18)**.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above, and further in view of Bordes et al. (US 6909747)

Regarding claim 11, Shih teaches the method according to claim 1.

Shih does not teach the limitation comprising a step of determining, for each one of the values at the vertices of the corresponding cell, whether said value is a minimum value, an intermediate value or a maximum value of the range of possible values of said physical property.

However Bordes discloses a method of determining, for a value, whether said value is a minimum value, an intermediate value or a maximum value of the range of possible values of a physical property **(column 4, lines 9-20)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Bordes' disclosure to determine the value of a cell in Shih's method for determining a physical property, the motivation being to provide for compression of the data **(Bordes: column 1, lines 15-18)**.

Regarding claim 12, Shih combined with Bordes teaches the method according to claim 11, wherein said criterion is fulfilled if all the values of the physical property at the vertices of the corresponding cell are minimum values, or if all the values of the physical property at the vertices of the corresponding cell are intermediate values, or if all the values of the physical property at the vertices of the corresponding cell are maximum values **(Shih: page 120, steps 4 and 5, i.e. variation from a plane, wherein it is implicit that if the values are all minimum, then the criterion is fulfilled)**.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above and further in view of Ghaderi (US 5438633).

Regarding claim 13, Shih teaches the method according to claim 1.

Shih does not explicitly teach the limitation wherein the range of possible values of the physical property is partitioned into a set of m sub-intervals, with m ≥ 2 being a natural number.

However Ghaderi discloses a method for representing a physical property wherein the range of possible values of the physical property is partitioned into a set of m sub-intervals, with m ≥ 2 being a natural number **(column 2, line 57 to column3, line 1)**.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use Ghaderi's method of partitioning values in to sub-intervals in order to reduce the memory requirements of Shih's method and increase processing speed **(Ghaderi: column 1, lines 59-61)**.

Regarding claim 14, Shih combined with Ghaderi teaches the method according to claim 13, wherein said criterion is fulfilled if all the values of the physical property at the vertices of the corresponding cell lie within the same sub-interval **(Shih: page 120, steps 4 and 5, i.e. variation from a flat plane; since the Shih/Ghaderi measurement range is divided into sub-intervals and each value that falls within a sub-interval is assigned the same output value (Ghaderi: column 2, line 67 to column 3, line 1), then if the measurements at the vertices all lie within the same sub-interval, they would all have the same output value)**.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih combined with Bordes as applied to claim 11 above and further in view of Cok (US 5032910).

Regarding claim 15, Shih combined with Bordes teaches the method according to claim 11.

Shih combined with Bordes does not teach the limitation wherein, in case said criterion is fulfilled, a mean value of the values at the vertices of the corresponding cell is assigned to the at least one inner point of said cell.

However Cok discloses a method of estimating an inner point of a cell (i.e. interpolating a missing value) by averaging the sample values (i.e. the values of the vertices of the cell **(column 3, lines 61-64)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Cok's method of averaging to assign a value to the inner point of the Shih/Bordes cell since this was a widely used and simple technique for filling in values for non-sampled data **(Cok: column 1, lines 32-35)**.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above and further in view of Lane et al. (hereinafter "Lane"; Pierre M. Lane, Ronnie Van Dommelen and Michael Cada, "Compact Disc Players in the Laboratory: Experiments in Optical Storage, Error Correction, and Optical Fiber Communication", 2001, IEEE Transactions on Education, Vol. 44, No. 1, pp. 47-60).

Regarding claim 16, Shih teaches the method according to claim 1.

Shih does not teach the limitation wherein for each vertex a flag is maintained that indicates if the value corresponding to said vertex has been obtained by interpolation or by measurement.

However, Lane discloses a method of data analysis wherein for each data point a flag is maintained that indicates if the value corresponding to said vertex has been obtained by interpolation or by measurement **(page 54, section B, lines 5-8, i.e. flag indicating interpolation)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Lane's flags with Shih's method to indicate interpolation in order to provide for external diagnostics and statistics testing **(Lane: page 54, section B, lines 8-10)**.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above and further in view of Figueiredo (Luiz Henrique de Figueiredo, "Adaptive Sampling of Parametric Curves", 1995, Academic Press Inc., Graphics Gems V, pp. 173-178).

Regarding claim 17, Shih teaches the method according to claim 1.

Shih does not teach the limitation wherein a mode of operation can be selected in which, for one or more of the inner points, and irrespective of said criterion, a measurement is performed.

However, Figueiredo discloses a sampling method wherein a mode of operation can be selected in which, for one or more of the inner points, and irrespective of said

criterion, a measurement is performed **(page 2, section "Choosing the Interior Point", line 8 to page 3, line 1)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Figueiredo's technique to Shih's method, the motivation being to reduce the effect of aliasing **(Figueiredo: page 174, section "Choosing the Interior Point", lines 6-7)**.

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 18 above and further in view of Wu (US 6329833).

Regarding claim 19, Shih teaches the method according to claim 18, wherein the step of refining the grid is iteratively repeated for a number of times **(page 120, section 2.1, lines 2-3, i.e. recursion)**.

Shih does not explicitly teach iteration to a predefined resolution.

However Wu discloses a step of refining a measurement wherein the step is iteratively repeated for a number of times until a predefined resolution is reached **(column 3, lines 20-33)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Wu's refinement technique to Shih's method in order to control measurement time **(Wu: column 6, lines 50-53)**.

13. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above, in view of Waschura et al. (Hereinafter "Waschura"; US 6728311), and further in view of Ohsawa (US 5717694).

Regarding claim 21, Shih teaches the method according to claim 1.

Shih does not teach the limitation wherein said method is applied for determining an eye diagram.

However, Waschura discloses a method for determining an Eye Diagram **(column 2, lines 21-26)** by taking samples of a signal. Waschura further discloses a need for taking relatively few samples **(column 1, lines 55-66, i.e. cost)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Shih's sampling method to Waschura's Eye Diagram, the motivation being to reduce the number of sampling points needed **(Shih: page 120, section 2.1, lines 4-5)**.

Shih combined with Waschura does not teach the limitation whereby said physical property is the number of fails.

However, Ohsawa discloses a method for determining a physical property whereby said physical property is the number of fails **(Fig. 4, Fail Counter 23)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Ohsawa's number of fails property in the Shih/Waschura method, the motivation being to provide high speed and accurate failure analysis **(Ohsawa: column 2, line 66 to column 3, line 3)**.

Regarding claim 22, Shih combined with Waschura and Ohsawa teaches the method according to claim 21, wherein said number of fails is determined as a function of a two-dimensional grid, said grid comprising a first coordinate indicating the timing of

the measurement pulses, and a second coordinate indicating the threshold voltage used for digitizing received bit streams **(Waschura: Fig. 6)**.

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih as applied to claim 1 above, and further in view of Waschura.

Regarding claim 25, Shih teaches the apparatus of claim 24.

Shih does not teach the limitation wherein said apparatus is adapted for at least one of a group comprising: testing a device under test--DUT--, testing of chips, determining bit error rates.

However, Waschura discloses an apparatus for determining bit error rates **(column 1, lines 23-33)** by taking samples of a signal. Waschura further discloses a need for taking relatively few samples **(column 1, lines 55-66, i.e. cost)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt Shih's apparatus for determining bit error rates, the motivation being to reduce the number of sampling points needed **(Shih: page 120, section 2.1, lines 4-5)**.

15. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shih.

Regarding claim 26, Shih teaches a method for determining a physical property as a function of a n-dimensional domain, with n being a natural number, whereby values of said physical property correspond to vertices of a n-dimensional first grid representing the domain **(page 121, section 2.1.2, grid formed from initial and inserted points after steps 1 and 2)**, said method comprising the steps of:

determining, for a set of cells of said first grid, at least one inner point per cell **(page 120, section 2.1.1, Step 3)**, whereby said inner points, together with the vertices of the first grid, form a respective second grid **(i.e. the grid formed by subdividing each of the initial triangles)**;

determining, for each of said inner points, a corresponding value of the physical property at said inner point, whereby, in case a predefined criterion is not fulfilled, said value at the inner point is obtained by performing a measurement **(page 121, section 2.1.2, steps 3 and 4)**.

Shih does not teach the limitation whereby, in case a predefined criterion is fulfilled, said value at the inner point is obtained by interpolation.

However, Shih discloses that the physical property is estimated by triangular patches formed from the sampled points **(page 119, paragraph 5, lines 4-6)**. Shi further discloses the use of interpolation from a triangular patch to obtain an inner point **(page 121, section 2.1.2, step 3)**. It is therefore implicit in Shih's disclosure that in case a predefined criterion is fulfilled, said value at the inner point is obtained by interpolation.

It would have been obvious to one of ordinary skill in the art at the time of the invention to determine Shih's un-sampled inner points by interpolation in order to reconstruct an object surface **(page 119, paragraph 5, lines 3-4)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLIFTON G. DALEY whose telephone number is (571)270-3144. The examiner can normally be reached on Monday - Friday 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Samir Ahmed
Examiner
Art Unit 2624

CGD
2/29/2008

/Samir A. Ahmed/
Supervisory Patent Examiner, Art Unit 2624